ABSTRACT

Molecular Analysis of *Salmonella* Enterica Strains Carried by Poultry Entering the Food Chain in Trinidad

Nitu Kumar

The present study was carried out with the aim to isolate and identify *Salmonella* spp. from poultry caecal samples collected from pluck shops in four zones of Trinidad. The study was also conducted to determine antimicrobial resistance of 91 isolates of *Salmonella* to 13 antimicrobial agents, virulence and resistance genes profiles and genetic relatedness of *Salmonella* serotypes by Pulsed Field Gel Electrophoresis (PFGE). A total of 1503 caecal samples of freshly slaughtered poultry were randomly collected from pluck shops across the country. The samples were screened for S*almonella* by biochemical, serological tests and PCR was used for molecular characterization. Ninety-one (6.1%) of the 1503 samples were positive for *Salmonella* spp. The highest frequency of positivity for *Salmonella* spp. was recorded in North east zone (59.3%) of Trinidad. Ten different serotypes were detected from all *Salmonella* isolates. *S.* Molade (56.0%) was the predominant serotype identified. All 91 isolates of *Salmonella* spp. exhibited resistance to one of the 13 antimicrobial agents. The highest frequency of resistance was detected to Ampicillin (51.0%), followed by Kanamycin (49.5%) and Streptomycin (37.4%). Multiple drug resistance (MDR) was exhibited by 90.0% of *Salmonella* isolates. The frequency of detection of virulence genes in isolates of *Salmonella* ranged from 0.0% (viaB) to 100.0% for *invA, mgtB, pipA* and *spi4D*. PFGE profiles showed that *Salmonella* isolates were genetically diverse. A total of 20 PFGE groups were detected. The antibiograms of the isolates were clearly much more variable, which suggest that genotypic antimicrobial resistance may not relate to the phenotypic antibiograms in dendrograms except for *qnrB* gene. The findings provide evidence that poultry from pluck shops are colonized by pathogenic *Salmonella* harbouring antimicrobial resistance genes. It is evident that there is a need for prudent use of antimicrobial agents in poultry production systems and should be constantly monitored in Trinidad.

Keywords: antimicrobial resistance; PFGE; poultry; pluck shops; *Salmonella*; Trinidad and Tobago; virulence gene, West Indies.